NICARAGUA

ARAP

Agriculture Reconstruction Assistance Program

North American Market Study Report

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INTRODUCTION

The ARAP project of Nicaragua is interested in the diversification of crops for their selected growers. They are interested in determining if Nicaraguan growers can access the U.S. market of ornamental plants. This study is to determine the characteristics of the U.S. market for ornamental plants; it's size and dynamics. In addition, the consultant will visit Nicaragua to determine the country's potential for entering this marketplace.

BRIEF HISTORY

Although the foliage industry in the United States can be traced back to the 1920's, for our purpose it is sufficient to understand the changes that have developed since the 1950's. At the time, the largest buyer of foliage plants was the F.W. Woolworth Co. with some 3,200 stores. They controlled the market of small potted foliage plants until 1960. In the 1950's growers in Miami and Apopka, Florida were able to ship to far away stores by Railway Express. They offered an excellent, door-to-door service, with only a three-day transportation time to northern and inland destinations like New York and Kansas City. This was quite acceptable for the main items being grown, which were Philodendron cordatum, Pothos wilcoxii, and Boston fern.

Northern growers began to invest in production facilities in Florida. Growing in Florida's tropical climate was much cheaper than in northern glass houses. Labor was plentiful and available at minimum wage; and the capital investment necessary was much smaller. Shade-houses were built of wooden slats on a wooden frame. Orange grove heaters supplied supplemental heat for a few short months out of the year. Much more cost effective than the industrial furnaces being used by northern growers. But rain could still destroy a crop, and the heavy clay pots being used greatly increased their transportation costs.

However, several major developments in the plastics industry resulted in significant changes in the developing foliage industry. The invention of plastic pots reduced freight costs and increased the Floridians competitive edge. Another significant development in the mid fifties was the manufacturing of saran cloth and sheet polyethylene in wide widths. Saran would be used in new shade house expansions at a much cheaper cost than that of the old slat house structures; and sheet polyethylene provided a cheap means of maintaining greenhouse temperatures and keeping out the rain. This would allow more sensitive crops to be grown and shipped.

Another breakthrough for the foliage industry was the advent of trucking companies specializing in foliage plants. Truckers had much more flexibility in delivery than the trains. Less handling was required because they could go right from the farms to the stores, bypassing the railroad yards. This enabled the growers to broaden their customer base. This new method of plant transportation resulted in the closing of Railway Express in 1965. Truck deliveries were made to supermarket produce

warehouses, and then daily deliveries of the produce would also deliver plants to the stores.

In the 1960's a few supermarkets were beginning to handle plants and even larger volumes could be sold. Florida growers began expanding their production facilities. New production areas in southern California in the San Diego and Half Moon Bay areas began to develop. Several growers in the Brownsville, Texas area also started a switch to foliage production. The foliage boom was beginning. Although still a small sector of the entire Floriculture Industry, ornamental plant demand was increasing at a steady pace.

The additional demand for foliage plant material stimulated the development of offshore nurseries. Farms were developed in Guatemala, Costa Rica, Honduras, Jamaica, Puerto Rico and the Dominican Republic. Because of Quarantine-37, restricting the import of plants in soil or other growing medium into the United States, offshore nurseries could not ship finished plants. This restriction is still in effect today, thus limiting offshore operations to shipping only bare-root cuttings and air layers. This has protected the U.S. foliage industry from the low cost, offshore production of finished goods; and it has allowed for the expansion of the offshore nursery production of mother stock to supply cuttings and rooted plant material to the U.S. growers.

Marketing channels have also expanded. F.W. Woolworth's no longer exists. They have been replaced with the super store concept. Wal-Mart, Kmart, Home Depot, as well as grocery store chains now carry large assortments of foliage plants and set the market for current producers. The cut flower industry has been severely undermined by offshore production and many growers are turning to alternative crops, including ornamental plants. The steady increase in total sales has been achieved by the marketing skills and demands of these large chains, although individual pot prices continue to fall. Margins continue to tighten and only the high quality, low cost producers continue to flourish.

U.S. MARKET SUMMARY

Floriculture crops reported 1998 sales of $3.93 billion. This is a 1% increase over 1997 sales of $3.9 billion and a 57.2% increase from the $2.5 billion of sales in 1989. Government statistics include cut flowers, bedding and garden plants, potted flowering plants, foliage plants and cut greens in the floriculture crop survey. They keep records of total greenhouse space, grower numbers and sales figures for these categories. More details can be seen in accompanying Annexes.

Commercial floriculture growers are defined in the government survey as a grower with at least $10,000 of wholesale sales. In the 36 major production states, the USDA now reports 14,308 growers. In 1998, there were 1,510 foliage producers compared with 1,746 in 1997. They also reported 5,177 growers with sales of at least $100,000. Although they only represent 36% of the grower numbers, they accounted for 91% of all sales.

The 1998 Floriculture Crop Summary gave breakdowns of the $3.561 billion of sales by firms with at least $100,000 of sales. Bedding plant sales lead the categories, and were up by 4% to $1.81 billion. This category now represents 51% of floriculture production sales. The top five states were California, Michigan, Texas, Ohio and Florida. Potted bedding/garden plants were $821 million; flats were $791 million, and hanging baskets were $200 million.

Potted flowering plants were the number two segment despite dropping by 3% to $701 million. California leads this sector with 21% of sales. Foliage plant sales came in third with $503 million. Florida dominates this segment with 63% of total sales. Potted foliage plants increased 5% in net value while hanging baskets fell 22 %. Fourth were cut flowers with $419 million of sales and fifth was cut greens with an 8% increase to $126 million. Florida dominated this category as well with 78% of sales.

There was also reported a 15% increase in total covered area (greenhouse plus shade and temporary cover) to 1.07 billion square feet. Of this, total greenhouse space increased 22% to 654 million sq. ft., 61% of the total covered area. Open ground production space increased 32% to 46,763 acres.

It is very interesting to note that although there was only a 1% increase in total sales, or approximately $30,000,000, between 1998 and 1999 there was reported a 15% increase in total covered area (greenhouse plus shade and temporary cover) to 1.07 billion sq. ft. Of this, total greenhouse space increased 22% to 654 million sq. ft., or 61% of the total covered area. This means there was an increase of nearly 118 million square feet of greenhouse devoted to floriculture crops! If the entire $30,000,000 increase in sales came only from the increase in greenhouse areas, which is hardly the case, it would only represent a gross return of $0.25 per square foot per year!

This is an alarming detail. Production capacity is rapidly increasing, surpassing the sustainable demand. In order to move the product, prices must drop, new marketing channels must be developed, or both. The trend has been to lower prices to increase market share and stimulate consumer demand. To a degree, this has been working. Growers have reported good product demand and good sales volumes. Many have met this demand by buying product from smaller growers. But prices are so competitive that this is often merely a “turnover” business, designed to maintain customer satisfaction

and market share. This has lead many growers to believe that if they "expand" their operations they will be able to produce the additional sales from their own operations and increase the margin on these plants.

But by implementing this strategy, they have actually increased total supply and put more pressure on the price. It is definitely a "buyers market". The large chains have put heavy pressure on producers to lower prices over the years, and this trend continues. They continue to demand higher quality plants, more frequent deliveries to their stores, greater plant diversity, extended credit terms and as if that is not enough, lower and lower prices. But they can move the volumes, and therefore, set today's market.

But by sacrificing margin for volume, and concentrating on cash flow instead of profitability, many businesses are in a tenuous situation. Last year, 67 growers with sales volumes of over $100,000 went out of business. When they default on their payments, it has a domino affect throughout the industry. The large suppliers of greenhouse supplies, seeds, or cuttings, may offset their losses with future price increases, or increased sales volumes. Or they may simple struggle through with less, or no profitability for a season or two. But for the smaller producers who sell their product through these larger growers, or the independent plant brokers brining in offshore product and trying to develop a niche market, payment defaults can mean the end of their business.

These figures demonstrate the increased competitiveness of the current industry. In order to survive in this business environment, one has to be a low cost, high quality producer. For the U.S. grower, this means more mechanization to reduce labor costs and increase bench space turnover. It means more efficient greenhouse structures and designs to maximize space use, reduce heating and cooling expenses, and facilitate the implementation of new technological breakthroughs in horticultural practices. It means computerization of crop programming and the development of Internet sales capabilities and applications. And it also means they want, and need, a dependable supply of competitively priced, high quality plant cuttings from offshore producers.

U.S. IMPORT TRENDS

FATUS (Foreign Agricultural Trade, US) is the division of the United States Department of Agriculture that maintains the record of imports to the United States. Stock plant cuttings brought into the United States are listed under the heading of Nursery stock. This category includes propagation material as well as finished plants. For example, finished plant imports of around $145.7 million from Canada, represented nearly 54% of the total nursery stock imports during 1996. However, we do know that due to Quarantine-37, finished plants cannot be imported from Central America. And, since this data does not include cut flowers, it gives us a good indication of the market size and trends for offshore cuttings and young plant material from Central American producers.

These records show that during the ten-year period from 1989 thru 1998, imports from Central America have grown from $11.4 million to $28.1 million. A 147% increase. In sequence of importance, we have Costa Rica, which represented 60% of the U.S. imports from Central America in 1998. Their exports to the U.S. have increased from $7.1 million to $16.8 million, a 135% increase over the last ten years. Following is Guatemala with 35% of the Central Americas 1998 sales volume to the U.S. market.

Their exports to the United States have grown from $3.2 million to $9.9 million, a 209% increase over the same time frame. El Salvador and Honduras follow with $ 0.7 and $0.6 million respectively; a combined 5% market share.

Miami continues to be the major port of entry into the United States, be it by air or ocean freight. Container loads of Yucca and Dracaena cane as well as small ponytail (beaucarnea) and sansavieria are shipped regularly to the Miami port. They are inspected by APHIS officials for insects and disease then they are trucked over land to the warehouse of the importer or, in many cases, are loaded in such a way that the trucker and make his "run" up through the Apopka, Florida growing areas, stopping along the way to unload pallet loads to specific growers.

Air shipments are picked up at the Miami airport by refrigerated vans or trailers, depending on the size of the shipments. The brokers usually meet the plane and unload directly into their refrigerated trucks. They then drive over to the APHIS inspection station where one sample box is taken for each variety of each size from each farm. If a live insect, egg or disease is found, that lot is detained and a detention certificate is issued. The importer then has the option to return the shipment to the country of origin, fumigate with methyl bromide or have the lot destroyed.

The trucker will then drive to the brokers warehouse and unload the contents into their refrigerated coolers for further in-house inspection. The brokers are looking for any quality faults that might cause the shipment to be rejected by the growers. This phase is often omitted once the broker has confidence in the packing and handling capabilities of the Central American exporter. The broker is also looking for discrepancies between actual box counts and boxes invoiced. The broker will then advise his clients of the product arrival, and depending on the client, they will either pick up at the brokers warehouse or pay extra for delivery to their farm operation.

COSTA RICA

I think it is safe to say, that if we examine the ornamental plant industries of Costa Rica and Guatemala, we will have an accurate picture of the current United States market for nursery stock from Central America, and be able to determine what type of competition Nicaragua faces in developing their entry strategies into this competitive marketplace.

Costa Rica's ornamental plant industry has been developing since the 1960's. Government incentives in the 1980's facilitated the expansion of the industry and today it is the largest in the region. According to information from the Central Bank of Costa Rica, in 1996 there were 4500 hectares of ornamental plant production in Costa Rica. From this area they exported 23,740 tons of product. Figures compiled by PROCOMER from the "ventanilla unica de Comercio Exterior, Zonas Francas", indicate that the export value of the 1998 crop was $50.34 million. And examining figures from January 1999 through November 1999, it is estimated there will be a 7% – 10% increase for the 1999 calendar year.

If we compare the Costa Ricans governments 1998 export figure of $50.34 million with the U.S. government's 1998 figure of $16.8 million of imports from Costa Rica we can see that the Costa Ricans have been very successful in developing other markets. They are expanding heavily into the European and Japanese marketplace.

These markets do not have the same quarantine restrictions as the U.S. and they are able to send rooted palms, ficus and other large finished plants by ocean freight. There also continues to be a high demand for large cane in these markets and Costa Rica excels in this crop specialty.

This information coincides with 1997 estimated numbers presented by Tom McGreogor of McGregor Plant Sales during the 1998 Agritrade in Guatemala. Although these are rough numbers, they show the general trend of 60% sales to Europe, 30% sales to the United States and 10% sales to Japan. So an evaluation of the European marketplace is definitely warranted.

Country	U.S.A.	Europe	Japan	Total
Costa Rica	$12,000,000	$24,000,000	$4,000,000	$40,000,000
Guatemala	$ 4,500,000	$ 9,000,000	$ 1,500,000	$15,000,000
El Salvador	$ 450,000	$ 900,000	$ 150,000	$ 1,500,000
Honduras	$ 450,000	$ 900,000	$ 150,000	$ 1,500,000

Mixed container loads of dracaena cane, sansavieria, beaucarnea and coconuts for seed are shipped to the United States as well. But no finished material can be imported. These larger plants hold up well for several weeks in refrigerated containers and by consolidating these products, U.S. brokers can fill a forty-foot container and take advantage of the cheaper per kilo rate. On average a trailer load is shipped with 9 to 10 tons of product. This equates to around $0.25 per kilo to California and $0.15 per kilo to Miami, a considerable savings on per unit cost over airfreight.

Airfreight rates from Costa Rica to the United States are comparable or better than those of Guatemala. Current published rates are $0.60 per kilo on shipments over 100 Kg to Miami and $2.16 per kilo on shipments over 300 Kg to Los Angeles. These rates are negotiable and shippers that can consolidate 300 Kg plus shipments on a weekly basis can get rates around $1.90 per kilo. Air shipments are used on smaller, more delicate, and lighter plants. Pothos, Crotons and tips of Schefflera, Dracaena and Cordyline are some examples.

GUATEMALA

Guatemala is the second largest exporter of ornamental plants to the United States. Sales figures have been steadily increasing although unit sales prices have not. The Gremial de Exportadores no Tradicionales has an Ornamental Plants Sector that is well organized and active. They have taken the lead in farm inspections and phytosanitary monitoring in cooperation with USDA APHIS officials. The official program is called PIPPA and they currently have registered 750 manzanas of farms that they inspect monthly to determine the presence of insects and diseases.

They have tended to specialize more in greenhouse production of ivy, marantha, peperomia, cissus and other cool weather crops grown at higher altitudes. They also have good amounts of warm weather vine crops like pothos, cordatum and marble queen. They do some dracaena tips, sansavieria and a good deal of beaucarnea to the USA but most goes to Europe. See appendix for areas planted per crop.

I was able to visit with Estuardo Arriaga of Agroinversiones. He is a broker of plants from Central America to the US and Europe and was very interested in discussing the potential of the ornamental plant business in Nicaragua. He believes the most potential is in large Yucca (Izote) and Dracaena fragrans 'Massangeana' cane to Europe and Japan. Large cane has become very scarce in Honduras and Guatemala and they are always looking for new sources. Izote is grown in Cost Rica on the Atlantic coast and in Nicaragua at altitude between 1400 and 1700 meters above sea level. The higher elevations produce a much higher quality cane that is preferred. This is often grown as erosion controls in coffee plantations and should do well in areas like Matagalpa in Nicaragua.

Areca palms are also in high demand in Europe, especially large specimens. These can be shipped by sea on refrigerated trailers. Europe and Japan both allow the importation of plants with soil, which makes this an attractive market for larger, finished plants. Although I was asked to concentrate on the US market, I think it's worth mentioning the interest shown by Agroinversiones who export extensively to the European and Japanese marketplace.

Estuardo also felt there is a continuing demand for Aglaonema Maria in a price range of $0.14 per cutting FOB, Small 2 – 4" red marantha' s for$0.04 and medium red marantha 4 – 6" in the $0.05 range. These would need to be grown in greenhouses near the 2500-meter altitude range in order to get the small size that is currently in demand.

Air layers of Gold Capella, Trinette and Hong Kong varieties of Schefflera continue to be in short supply. Sales price are in the range of $0.01 per inch. A twelve-inch plant being $0.12 and a 20-inch cutting at $0.20. These are being grown from sea level under shade cloth to about 1000 meters un full sun. The higher elevation produces a shorter, more compact cutting. But production is slower and usually less profitable for the growers.

There is also very little production of Sansavieria trifasciata, "golden hahnii". This would have to be grown under shade cloth between sea level and maybe 600 meters elevation. An un-rooted mother plant of around 6 – 8 inches would go for about $0.20. Again, this is a plant that is in high demand in the European marketplace. It is small enough to lend itself to air shipments.

In addition, he believes that Janet Craig Compacta under artificial or natural shade between the elevations of 1500 to 1800 meters should continue to have increased demand in the European, Japanese and US marketplace. Four to five foot material that is rooted and has ten to twelve inch tips will bring about $0.75 per foot FOB for Europe and $1.00 for Japan. Rooted and sprouted material this large cannot be shipped to the US, however.

I was also able to interview Antonio at Jacobi, S.A. Jacobi, S.A. is the largest exporter of tillandsias in Guatemala. They currently export around $750,000 per year of tillandsias and have done over $1,000,000 in the past. Two years ago CONAB, the government institution which regulates forestry products, prohibited the harvest and direct export of tillandsias from Guatemalan forests. Since then, all export sales have come from production facilities and they have not been able to grow at a rate quick enough to meet demand.

Jacobi, S.A. currently has 59 varieties under commercial production. They have nearly 35 manzanas of production area between three farms at different elevations, with

environmental conditions appropriate to each variety. Yet they only have around 40 employees on the three farms. Once established, tillandsias are not a high labor-demanding crop. Mexico and Costa Rica also have production of Tillandsias. It is also interesting to note that 60% of their sales is to Europe, 30% to the US and 10% to Japan.

Antonio recommended Paul T. Isley, III's book Tillandsia as a good source for information on variety identification. The most reliable brokers they have found are Bill Tiper of Tree Fern Gardens in Apopka, Florida and Tillandsia International of San Francisco. Some interesting web sites for further information are www.jacobi.com.gt and www.airplants.com.

MIAMI VISITS

Wednesday, August 30. I visited Randy Goff, General Manager of Foremost Foliage in their Miami offices. They have been importing ornamental plant cuttings from Central America for 14 years. They are currently the largest importer of plants into Miami from Central America. 60% of their imports come from Costa Rica, 25% from Guatemala, 10% from Honduras, and 5% from El Salvador.

They currently import two to three trailers per week from Costa Rica of mixed canes. Their major import by air are small cycas revolute, pothos, crotons and dracaena. From Guatemala they mainly source ivy, marantha and peperomia. From Honduras they purchase crotons, aglaonema's and yucca cane and tips. And from El Salvador they are importing crotons, aralias and aglaonema's.

Randy commented on the competitiveness of the market. He cautioned about "chasing the market". That is, producing large quantities of what is in short supply today. Everyone has this tendency and by the time the plantations come into production, there is an over supply and prices drop. Quality and price are major concerns when importing plants. They are a given, a necessity. But to get into the market and stay there, you also need timeliness of delivery. In many ways this is out of the growers hands. It requires a reliable airfreight service, cool room facilities at the airport, and conscientious handling by the local freight forwarders.

He believes there will be a continued demand for cycas revoluta, aglaonema's and especially large dracaenas and yucca. They do not market tillandsias and considers that to be a more specialized market. He concurred with the manager of Jacobin that Tree Fern Gardens of Apopka and Tillandsias International in San Francisco are the two major importers of tillandsias and are reliable brokers.

He didn't see much of a future for importing braided products because of the Quarantine37 restrictions. It is called the 18" rule. It does not the importation of rooted plants of over 18" length. Also, plants cannot be imported in the medium in which they were rooted. Therefore it is necessary to wash and ship the plants bare-rooted. This often results in defoliation of the plants on arrival and many growers have grown wary of off shore bare root imports of schefflera and ficus braids.

It was Randy's opinion that Nicaragua might be too late in getting started with an ornamental industry. His feelings were that the country has too many political and economic problems, poor infrastructure and a lack of ornamental plant production knowledge to compete with other Central American producers. He especially was concerned with what he referred to as the "timeliness issue"; the fulfillment of shipping

dates and times by the local air carriers, as well as the accurate management of crop rotation cycles by un-experienced growers.

For those with access to the Internet, a visit to the Foremost Foliage web page, www.foremostfoliage.com, will give an idea of the kinds of plants that they are importing from Central America, the sizes that are more prevalent and their wholesale price structure.

Other brokers in the Apopka, Fl. Region, such as Karen Pumphrey of Costa Verde Imports, Jeff Welker of R.P. Welker, Wayne Tai or Jim Evelyn of Global Foliage, Larry Baruse at South Florida Plants, Darlene at Plantas Excellentes and the companies American Foliage, Stewron, Dracaena Cane Corp. have been importing from the Central American region for years. They are always looking for new and reliable suppliers. Telephone conversations with Costa Verde and R.P. Welker indicated they could use more aglaonema's and small red marantha' s, while Dracaena Cane Corp. was looking for new sources of canes.

Thursday August 31 I spent the day at the APHIS inspection station at the Miami Airport. I was very well received by Director Gordon T. Muaoka, PPQ Officer, Ronald G. Lee and Plant Pathologist Fred Zimmerman, Plant Entomologist Tom Skarlinsky and Fernando Lenis. I was able to get a copy of Quarantine 37 to leave with ARAP managers for future reference. In addition I got several handouts on specific question such as packing materials that could be used.

APHIS does not currently have a representative in Nicaragua. This would not, however, deter the Nicaraguans from exporting if they acquire the proper certificate of origin and phytosanitary certificate from local government officials. They would, however, be more diligent in their inspections of initial plant imports from a new source. They keep record of specific problems encountered on a farm-by-farm basis and once an insect or disease is discovered on a specific crop or from a specific exporter they will examine each of these shipments more carefully for that specific pest.

It is APHIS's main concern that no new insects or diseases get into the USA and thus affect US growers. The Miami office currently receives nearly 80% of all the plants imported into the United States from all foreign countries. They take their job very seriously. If a live insect, egg or plant pathogen is found, the importer has the option to have the product returned to the shipper, fumigated or destroyed. The decision made by the importer will depend on the crops tolerance to methyl bromide, the value of the product being detained, the perishability of the product, the pest or organism encountered.

I also visited the Costa Rican Consul to inquire on Costa Rican wage scales, government incentives to agribusiness investors, airfreight availability, etc. However, because of the Labor Day weekend, they closed early and I was not able to get written documentation to back up information I had received through other sources.

NICARAGUAN FIELD TRIPS

On Monday, September 4, we visited the cold storage facilities of FRIGORIFICOS APENN/PL-480 at the Managua airport and a regional facility in Sebaco. The airport facility had three cold storage rooms; one unit which was 15' x 20' x 10' and two rooms that were 30'x 20' x 10'. One large room was set up for frozen foods; the others were kept at or near 3 C. The managers claimed both rooms had the capability of maintaining the warmer temperatures required for tropical plants, that being, 15 C.

If we assume an average box dimension to have 3 cubic square feet and a weight of 15 kilos, and that 60% of a cool room could be used effectively, the smaller cool room would have the capability of maintaining 600 boxes or 9000 kilos. If we use a moderate average value of $32.00 per box this would equate to $19,200 of product. If growers could organize one shipment a week to California and one shipment per week to Miami, the small cold room alone would be adequate to sustain a $2,000,000 export business of ornamental plants.

Tuesday through Thursday we visited growers in Matagalpa, Jinotega, Miraflores, Esteli, Ticuantepe, Catarina, Nikinomo and Managua. In the Matagalpa/Jinotega region the majority of growers expressed interest in cut flower production for the local market. They did not seem to be too enthusiastic about exporting, or the production of, "ornamental plants". In Miraflores their main interest seemed to be organic vegetables. They need a lot of support in this area even to make the quality standards of the local market. They seemed to show some interest in the idea of exporting Tillandsias, but did not seem to like the idea of harvesting from the wild. They considered that this was ecologically unsound.

The growers in the Ticuantepe, Catarina, Nikinomo and Managua regions seemed to be more focused on ornamental plants and bedding plant production for the local market. They seemed to be anxious to learn more about modern production techniques. They seemed open and eager to form some type of growers association that would help them as a group to improve the quality and diversity of products they currently offer to the local market, and to eventually export.

I purchased an assortment of plants from the different areas to display during the Saturday demonstration. The variety of plants was limited and the quality, in general, was quite poor. In general the growers had little or no knowledge of the use of rooting hormones, rooting benches, or misting requirements to improve plants rooting. For many, it was quite acceptable for 30 or 40 plants to survive out of every hundred planted. There was no selection process to try and improve plant material over time. The idea of a 'mother block' of plants to produce quality cuttings for their own needs was foreign to all except a few cut flower chrysanthemum growers. And in their case, the quality of the stock plants was totally unacceptable for commercial production.

There did not seem to be a clear idea on what 'ornamental' plants were. The major interest was cut flowers, followed by flowering potted plants. And there was also

some interest in 'cut-greens'. So, after spending 5 days visiting growing areas and growers I decided to alter my presentation to include some basics about the ornamental plant industry, go into much less specific details on the US marketplace, and go into some detail on a few specific plants that had potential. I explained exactly what we were referring to by 'ornamental plants' during my presentation and tried to focus on the potential for the export market.

SUMMARY OF OBSERVATIONS

There is no doubt in my mind that Nicaragua has the necessary land resources, hydraulic resources and climatic conditions to initiate an ornamental plant industry to supply quality cuttings and plant material to the US marketplace, as well as Europe and Japan. Their labor pool is the least expensive in the region and quite trainable for this type of activity, which does not require substantial academic preparation.

Although current infrastructure is below that of Costa Rica and Guatemala, it is quite adequate to facilitate the production, transportation and handling of ornamental plants. Roads are adequate and being improved. Telecommunications are available and cell service is expanding. Internet access is quite available in Managua and the areas visited. Refrigerated storage at the airport, in Sebaco and Jinotega are adequate and can grow to meet future demands. Refrigerated truck transportation from farm areas to the airport is available as well.

It was very interesting to note the attitude of the administration of the Miraflores project above Esteli. They are extremely conscientious about ecological considerations. They are struggling to develop an organic vegetable farming operation for local market sales. Although all questioned stated that there is absolutely no premium paid locally for organically grown vegetables, they are easily sacrificing 50% of their yields to insect pests that could be controlled with rational use of registered pesticides. And when some 'organically approved' fungal or viral agents were suggested, the comment was that they were looking for 'local strains' and felt uncomfortable about 'importing foreign strains' and upsetting the natural environment.

This is a commendable attitude, and quite acceptable in many European communities. However, under Nicaragua's actual conditions, it is a costly luxury. These farmers appeared to be near the subsistence level and could greatly benefit by the rational use of registered pesticides, but appeared to be bullied into this 'organic' mode by Nicaraguan project administrators. I mention this because there currently is no market advantage to 'organic ornamental plants', and without the rational use of certain insecticides and fungicides they will not be able to produce the quality plant required in the export market.

Talking with local growers it was also obvious that local financing is very costly. They said it was easily 40% once all charges were added up. Plus high collateral was required. Some of this can be offset by the government incentives to non-traditional exporters. The duty free imports of production materials and the tax-free status available to ornamental growers are incentives that should make the export of ornamental plants attractive to growers. In addition, the acquisition of hard currency will be an added benefit for those that decide to become exporters.

RECOMMENDATIONS

As stated in my final presentation, I believe that the collection, preparation and export of Tillandsias, has the most potential for short-term results. Work should be done to catalog the varieties that exist, their status under CITES regulations and their potential to be commercially produced. Please see final power-point presentation for more details.

It is also important that growers organize into some type of guild or association. This will give them economy of scale for the importation of needed materials as well as offset some fixed operating costs when they begin to export. It will allow them to take better advantage of international help programs as well as dealing with government agencies that are responsible for monitoring plant imports.

I also believe a study of the European and Japanese markets is advisable. My investigation showed that Europe is currently importing twice the amount of ornamentals than the US marketplace. And Japan is paying a superior price for the material they are sourcing in Central America. These two markets could be of considerable interest for growers of large finished plants, which in many cases could be harvested from existing coffee farms.

I also suggested the development of at least three model production units in three different geographical areas. These should have at least three different varieties of ornamental plants per unit. Modern irrigation, fumigation and production systems should be installed and used. A small greenhouse unit should also be built to use as a rooting facility to teach better propagation practices. These units should be used as teaching facilities to train growers, technicians and agronomists in the specific practices utilized by modern ornamental plant producers. The experiences gained in each area can be used to write detailed production manuals to aid in the learning process for new growers.

In general, the Nicaraguan growers need to learn to stand on their own two feet. There are still many that seem to have grown accustomed to international handouts. This is not the answer. Others feel there are too many political and economic barriers standing in their way. Granted that there are many difficulties to be overcome, but none are insurmountable. The development of an ornamental plant industry is a viable alternative to subsistence farming. More teaching and guidance are required. The hiring of Jilma Ramìrez Umaña is an excellent step in the right direction. Her book, “The production of Aglaonema Commutatum in Costa Rica” is an excellent example of her capabilities and knowledge of the production techniques currently in use in Costa Rica, and quite applicable for Nicaraguan producers. I believe she will be a great asset to improving the quality of plants grown for the local market and especially to those growers who decide to take the step into the international arena.

And possibly of most significance is the current airfreight rates from Nicaragua to Miami and Los Angeles. Without negotiations, airfreight rates are competitive with those of Costa Rica and Guatemala. While these countries currently pay $0.60 and $1.90 per kilo to Miami and Los Angeles, respectively, ARAP personnel were quoted $0.50 and $1.00 per kilo to these same markets. A small program shipping 1000 kilos a week to Los Angeles and 1000 kilos a week to Miami would have a $1,000 per week advantage over their competitors. And these types of volumes could be reached with as little as three hectares under production.

A quality, turnkey shade-house operation, including steel posts, ¼" cable, imported shade cloth, irrigation and a small on farm cold storage unit could be set up for around $50,000 per hectare, plus plant costs, which would vary depending on species. A quality French built, turnkey greenhouse operation would be closer to $270,000 per hectare, including a steel structure with roof vents and inflatable double poly roof, but without benches, plants or irrigation. A single poly stand-alone hoop house would be less than half this cost and probably would be sufficient for start up operations.

What I would not recommend is starting off with the cheapest installations money can buy. Most beginning growers are extremely conscious of cost reductions; but cost savings in shade-house or greenhouse installations, mother-stock plants purchases, irrigation equipment and spray equipment selection as well as cold storage facilities construction can often be the most expensive saving they will ever make. A quality installation is a statement of a grower's commitment and dedication. It builds confidence in the buyers who will visit an operation before contracting on a steady basis from a grower. It also gives the grower a market edge over mediocre growers who are not re-investing their profits in updating their facilities. And in the long run, the reduced maintenance costs, the lower operating costs and the increased yields obtainable by more uniform growing conditions will more than offset the initial start up costs. If the grower has a limited budget, it is better to do less, but do it well.